UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
J.F. KENNEDY FEDERAL BUILDING, BOSTON, MASSACHUSETTS 02203-2211

February 11, 1992

Mr. Francisco LaGreca
U.S. Department of the Navy
Northern Division - NAVFAC
U.S. Naval Base - Building 77L
Philadelphia, PA 19112

Dear Mr. LaGreca:

Please find listed below several additional EPA comments on the "Draft Final Report - Remedial Investigation - Naval Education and Training Center (NETC), Newport, Rhode Island." These comments are in addition to those previously submitted pursuant to EPA's February 6, 1991 correspondence.

General

- In the opening paragraphs of the executive summary, the investigation should be identified as a Phase I investigation with a Phase II to follow, as was expressed at the TRC meeting held in Newport, Rhode Island on December 4, 1991.

- Information in the report, as it pertains to the Regional Hydrogeology of the area, is sparse. Please include hydrogeological information, such as the nearest location of upgradient wells, the estimated number of wells within a one-mile radius of the site, and the aquifer(s) in which they are screened.

- Please elaborate on the usefulness of the fill and till layers as a sole source aquifer. Based on the hydraulic conductivity values determined for these units, it appears that the two units are not feasible to act as a water source. The potential use of these units as a water source will impact the scope of the risk assessment.

- The discussion on results of geophysical investigations (i.e., EM-31 or magnetometry) should include the potential identification of anomalies (negative or positive). For instance, if high magnetometry readings are detected, the report should state, if practical, whether rebar or drums may be present. Similarly, if high conductivity readings are detected, the presence of elevated levels of contaminants (metals/organics) or salt water intrusion may be the reason for the elevated levels.

- The methodology presented in the hydrogeology section for each site may be incorrect. It appears as though the horizontal hydraulic gradient (in both shallow and deep wells) is calculated based on individual wells (i.e., from well-to-well) and not necessarily perpendicular to the ground water contour lines. If this is the case, this approach is incorrect and the resulting velocity calculation would be incorrect.

Site 01 - McAllister Point Landfill

- Page 2-7, Section 2.2.1 - In Figure 2-1, could the potential reason for the decline in hydraulic conductivity along the shoreline possibly relate to the fact that the depth to ground water exceeds the pick up of the EM-31 instrument? It is recommended that at least one EM-31 line be run along the shoreline in order to better characterize the presence of contaminants entering Narragansett Bay from the landfill.

- Page 2-8, Section 2.2.1 - What is the rationale for depicting areas "A" and "B" as distinct anomalies in Figures 2-1 and 2-2?

- Page 3-13, Section 3.3 - Why is overland flow hindered by a 10 foot change in elevation between the western periphery of the site and the shoreline?

- Page 3-20, Section 3.4.2 - In order to get a better perception of the horizontal and vertical extent of the various geologic lithologies, please extend the lines of cross-section for B-B′ to MW-22 and C-C′ to MW-21.

- Page 3-32, Section 3.5.1 - Regional hydrology discusses in general, private wells in the region and notes that some of these wells are in close proximity to the site, but are upgradient. "Upgradient" should be defined in terms of topographically or hydrologically. Please clarify.

- Page 3-33, Section 3.5.2 - MW-5D screened in bedrock has a hydraulic conductivity (K) greater than well MW-3D which is screened in fractured bedrock. What explanation can be provided for a higher K value for competent bedrock than for fractured bedrock? Please elaborate on whether the hydraulic conductivity values cited for the upper bedrock would be great enough to extract and provide a source of water if deemed necessary.

- Page 3-34, Section 3.5.2 - A discussion pertaining to the vertical gradient for well cluster MW-5S and MW-5D should be presented. Since the site is approximately six acres in

size, an additional well cluster is needed between monitoring well MW-1 and MW-2 in order to determine how contaminants migrate vertically throughout the aquifer on the northern section of the site.

Also, a review of Table 3-1 raises the question as to why the maximum vertical hydraulic gradient occurs during the September 1990 measurement at well cluster MW-3, when the gradient at well cluster MW-5 was close to its lowest value. In addition, it also appears that a maximum gradient at MW-5 occurred when the gradient at MW_3 was lowest (April 90). This discrepancy should be expanded upon in the text.

- Page 3-35, Section 3.5.2 - The hydraulic gradients from well-to-well (MW-5S to MW-6, MW-5D to MW-3S, and MW-3D to MW-1) appear to be incorrect. The hydraulic gradient should be calculated perpendicular to the contour lines and not from well-to-well. In addition, the calculation of ground water velocity based on the cited hydraulic gradients would lead to an inaccurate velocity value.

Site 09 - Old Fire Fighting Training Area

- Page 3-25, Section 3.4.2 - Four bedrock wells (1 well cluster) should be installed during Phase II RI activities at this site to adequately define the geochemical nature of the bedrock aquifer. It appears as thought the only boring installed to bedrock (sandstone?) was B-1. In addition, boring B-1 is shown in Figure 3-11 and not 3-13 as cited on Page 3-26.

- Page 3-41, Section 3.5.2 - Based on water level elevations for monitoring wells installed at this site, it appears that ground water flows to the north. However, on an island, ground water contour lines would tend to follow the contour of the shoreline, which is not the case here. Can a rationale be provided as to why contour lines do not follow the shoreline? Lastly, as mentioned previously, it is incorrect to cite hydraulic gradient values from well-to-well. Gradients should be calculated perpendicular to the ground water contour lines.

Site 12 - Tank Farm Four

- Page 3-44, Section 3.5.2 - The text states that slug tests were performed on two shallow wells, MW-1S and MW-5S (logs for these wells identified as MW-1S and MW-5). The text further states that these shallow monitoring wells are all screened in till. However, the log for MW-5 has the screen set from 16 to 26 feet with till only extending to a depth of 12 feet and weathered shale down to 27 feet. Please explain the discrepancy.

Well MW-1S has a screen set from 2.5 to 12.5 feet which is in till that extends to an approximate depth of 24 feet. It is assumed that the till from 12 to 24 feet is comparable with that from 2.5 to 12.5 feet, but the exclusion of twelve feet from hydraulic conductivity is confusing. Please explain.

While HNu readings of the weathered shale of MW-5 were relatively low, the highest readings for MW-2, another well completed in weathered shale, were highest in the shale. Based on "elevated" HNu readings detected at boring MW-2, two bedrock wells should be added east and west of MW-2 in order to confirm the potential lateral extent of ground water contamination.

- Page 3-45, Section 3.5.2 - This discussion should include an interpretation of the analytical results quoted in the text. For instance, why does the largest gradient occur within MW-5S/D and the lowest at MW-3S/D? Typically, vertical gradients are established using piezometers. Since the screen length is between 10 -15 feet, a composite head is obtained and not a hydraulic head at a discrete depth (which is actually being sought). Therefore, it is possible that the vertical gradient cited may be incorrect.

- Page 3-45, Section 3.5.2 - As previously discussed, the horizontal hydraulic gradient should have been calculated from well-to-well, not perpendicular to the ground water contour line. If the gradient were calculated based on a well-to-well scenario, the gradient and the average linear velocity calculations are incorrect as presented. The hydraulic gradient as calculated perpendicular to the contour lines approximate 0.03 ft./ft. and not those cited in the text.

  This is also the case for the gradients quoted for deep wells (MW-3D to MW-1D) and to the average liner velocities based on those hydraulic gradients. There appears to be a fundamental discrepancy in the calculation of horizontal hydraulic gradients. This appears to be a site-wide problem.

- Page 3-49 and 3-50, Section 3.5.2 - As previously discussed, a hydraulic gradient based on ground water elevations in wells MW-3 and MW-2 do not represent a flow line perpendicular to the contours of Figure 3-27. The report should include an appropriately calculated gradient (i.e., one calculated perpendicular to the ground water contour lines) with a discussion of why this gradient might differ on a different data and location within the aquifer. Calculating an average gradient for three different dates

does not contribute to an understanding of the flow system. The ground water velocities should be presented for three different rounds of sampling. The gradient cited for MW-5 to MW-3 (0.0398 ft./ft.) should be for MW-5 to MW-4 (see Table 3-7).

Should you have any questions in regard to the above, please do not hesitate to call.

Sincerely,

Carol A. Keating

Carol A. Keating
Remedial Project Manager
Federal Facilities Superfund Section

cc: Paul Kulpa, RIDEM
Steve Mierzykowski, U.S. Fish & Wildlife Service
John Lindsay, NOAA
Susan Svirsky, U.S. EPA
Matthew Hoagland, U.S. EPA
Margaret McDonough, U.S. EPA
Patti Lynne Tyler, U.S. EPA
Agnes Bereny, U.S. EPA
Robert DiBiccaro, U.S. EPA
Michael Kulbersh, CDM-FPC